

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (currently amended) ~~Method~~ A method for the treatment of hair, comprising

[[ - ]]applying a composition onto hair, wherein the composition comprises at least one active agent, selected among compounds, which are, alone or in combination with further compounds, capable, after application to hair and after the carrying out of the hair treatment of hair-described in the following, to provide a shape memory effect;

[[ - ]]previously, at the same time or subsequent to the application of the composition, bringing the hair into a desired shape (permanent memory shape) and

[[ - ]]fixing the memory shape subsequently by inducing a chemical or physical change of the applied agents;

wherein, after a desired or undesired deformation of the memory shape, the initial memory shape can be substantially recovered by means of a physical stimulation.

2. (currently amended) ~~Method~~ A method for hair ~~treatment~~according to claim 1, wherein

[[ - ]]the composition comprises at least one cross-linkable macromer, which forms after crosslinking a shape-memory polymer, wherein the macromer

a) comprises cross-linkable segments, which are cross-linkable by means of chemical bonds, and

b) thermoplastic segments, which are not chemically cross-linkable,

[[ - ]]wherein the step of fixing the memory shape is achieved by means of

chemical cross-linking of the macromer in order to form the shape-memory polymer, and wherein the shape-memory polymer possesses at least one transition temperature  $T_{trans}$ .

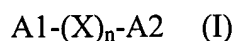
3. (currently amended) ~~Method~~ A method for hair treatment, wherein

[[ - ]] a hairdo (permanent shape) programmed in accordance with the method according to claim 1 ~~or claim 2~~ is heated to a temperature above  $T_{trans}$ ,

[[ - ]] the hair is brought into a second (temporary) shape, and

[[ - ]] the second shape is fixed by means of cooling to a temperature below  $T_{trans}$ .

4. (currently amended) ~~Method~~ A method in accordance with ~~any of the preceeding claims~~ claim 1, wherein the composition comprises at least one cross-linkable macromer, which forms after crosslinking a shape-memory polymer, and wherein the cross-linkable macromer is selected among compounds having the general formula



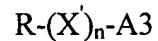
Wherein ~~wherein~~ wherein A1 and A2 represent a reactive, chemically cross-linkable group and wherein  $-(X)_n-$  represents a divalent, thermoplastic polymer segment or oligomer segment.

5. (currently amended) ~~Method~~ A method according to claim 4, wherein the cross-linkable macromer is selected from polyesters, oligoesters, polyalkylene-glycols, oligoalkylene-glycols, polyalkylene carbonates and oligoalkylene carbonates substituted with at least two acrylate groups or methacrylate groups.

6. (currently amended) ~~Method~~ A method in accordance with claim 5, wherein the cross-linkable macromer is selected among poly( $\epsilon$ -caprolactone)-dimethacrylate, poly(DL-lactide)-dimethacrylate, poly(L-lactide-co-glycolide)-dimethacrylate, poly(ethylene-glycol)dimethacrylate, poly(propylene-glycol)dimethacrylate, PEG-block-PPG-block-PEG-dimethacrylate, poly(ethylenedipate)-dimethacrylate and hexamethylenecarbonatedimethacrylate.

7. (currently amended) ~~Method~~ A method in accordance with ~~any of the preceding claims~~ claim 1, wherein the composition comprises in addition a macromer having only one chemically reactive group, provided at the terminal or at a side chain.

8. (currently amended) ~~Method~~ A method in accordance with claim 7, characterized in that the additional macromer is selected among compounds of the following general formula



wherein R represents a monovalent organic residue, A3 represents a reactive, chemically cross-linkable group and wherein  $-(X')_n-$  represents a divalent, thermoplastic polymer segment or oligomer segment.

9. (currently amended) ~~Method~~ A method in accordance with claim 8, wherein the additional macromer is selected among polyalkylene-glycols substituted with one acrylate group or methacrylate group and monoalkylethers thereof as well as block copolymers thereof.

10. (currently amended) ~~Method~~ A method in accordance with claim 9, wherein the additional macromer substituted with only one chemically reactive group is selected among poly(ethylene-glycols)monoacrylate, poly(propylene-glycol)monoacrylate and monoalkylethers thereof.

11. (currently amended) ~~Method~~ A method in accordance with claim 1, wherein the composition comprises at least ~~[[to]]~~ two active agents, which alone show no or only weak shape memory properties, but which, after combined application to hair provide a synergistically increased shape memory effect.

12. (currently amended) ~~Method~~ A method according to claim 1, wherein the

composition comprises at least one shape memory polymer, which comprises

- a) at least one hard segment which can be crosslinked by means of physical interactions, having a first transition temperature  $T'_{trans}$ , which lies above room temperature, and
- b) at least one soft segment having a second transition temperature  $T_{trans}$  which lies below  $T'_{trans}$ , and

wherein the memory shape is fixed by means of a physical crosslinking of the at least one shape memory polymer[[s]].

13. (currently amended) ~~Method in accordance~~ A method according to claim 12, wherein

~~the~~ shaping of the hairs occurs under warming to a temperature of at least  $T'_{trans}$  and

wherein ~~the~~ subsequent fixation of the hairdo occurs by means of cooling to a

temperature below  $T'_{trans}$ .

14. (currently amended) ~~Method~~ A method for hair treatment, wherein

[[ - ]] a programmed hairdo (permanent shape) obtained in accordance with a method according to ~~claims 12 or 13~~ claim 12, is warmed to a temperature between  $T'_{trans}$  and  $T_{trans}$ ,

[[ - ]] wherein the hair is then brought into a second (temporary) shape and

[[ - ]] wherein the second shape is fixed by means of cooling to a temperature below  $T_{trans}$ .

15. (currently amended) ~~Method~~ A method for reprogramming of a hairdo (permanent shape) obtained in accordance with the method according to claim 12 into a new permanent shape, wherein

[[ - ]]the is hairdo is warmed to a temperature above  $T'_{trans}$

[[ - ]]followed by bringing the hair into a new shape, and

[[ - ]]followed by fixing the new shape by means of cooling to a temperature below  $T'_{trans}$ .

16. (currently amended) ~~Method~~ A method in accordance with ~~any of claims 12 to 15~~ claim 12, characterized in that the shape memory polymer possesses a degree of crystallinity of from 3 to 80% and wherein the ratio of the moduli of elasticity below and above  $T_{trans}$  is at least 20.

17. (currently amended) ~~Method~~ A method according to ~~any of claims 12 to 16~~ claim 12, characterized in that the shape memory polymer is a copolyester urethane.

18. (currently amended) ~~Method~~ A method according to claim 17, characterized in that the shape memory polymer is ~~the~~ a reaction product of (a) two different macrodiols, selected among  $\alpha,\omega$ -dihydroxypolyesters,  $\alpha,\omega$ -dihydroxyoligoesters,  $\alpha,\omega$ -dihydroxypoly lactones and  $\alpha,\omega$ -dihydroxyoligolactones, and (b) at least one diisocyanate.

19. (currently amended) ~~Method~~ A method for the recovery of a programmed hairdo (permanent shape) obtained by one of the methods according to ~~claims 1, 2, 11, 12 or 15~~ claim 1, wherein the hairdo in a temporary shape according to claim 3 [[or claim 14]] or in the shape of a hairdo obtained by cold forming, is warmed to a temperature above  $T_{trans}$ .

20. (currently amended) ~~Cosmetic~~ A cosmetic composition, comprising in a cosmetically suitable medium at least one active agent, selected among compounds which, alone or in combination with other compounds, are capable, after application to hair and carrying out the treatment according to ~~any of claims 1 to 19~~ claim 1, to provide a shape memory effect to hairs.

21. (currently amended) ~~Cosmetic~~ A cosmetic composition according to claim 20, wherein the active agent comprises a macromer which is cross-linkable to a shape-memory polymer, wherein the cross-linked shape-memory polymer possesses at least one transition temperature  $T_{trans}$  and wherein the macromer comprises

- a) cross-linkable segments which are cross-linkable by means of chemical bonds,  
and
- b) thermoplastic segments, which are not chemically cross-linkable.

22. (currently amended) ~~Cosmetic~~ A cosmetic composition in accordance with claim 20, characterized in that the active agent is a shape memory polymer, which comprises at least one hard segment with a first transition temperature  $T'_{trans}$ , which is crosslinkable by means of physical interactions, wherein the first transition temperature is above room

temperature, and at least one soft segment having a second transition temperature  $T_{trans}$ , which lies below  $T'_{trans}$ .

23. (currently amended) ~~Composition~~ A composition in accordance with claim 20 characterized in that at least two active agents are contained, which alone do not show shape memory properties or only weak shape memory properties but which, after combined application according to claim 1, provide the hair with a synergistically increased shape memory effect.

24. (currently amended) ~~Composition~~ A composition in accordance with ~~any of claims 20 to 23~~ claim 20, characterized in that additionally 0.01 to 25 wt.-% of at least one active agent are contained, selected among hair cosmetics, hair fixatives and hair colorants.

25. (currently amended) ~~Cosmetic~~ A cosmetic composition in accordance with ~~any of claims 20 to 24~~ claim 20, characterized in that it ~~is~~ the composition is provided in the form of a lotion, a spray lotion, a cream, a gel, a foam gel, an aerosol spray, a non-aerosol spray, an aerosol foam, a non-aerosol foam, a O/W-emulsion or W/O-emulsion, a macro emulsion or a hair wax.

26. (currently amended) ~~Use of~~ A method of treating hair comprising the step of applying to the hair macromers which are cross-linkable to shape-memory polymers ~~for the treatment of hair~~, wherein the macromer comprises

- a) cross-linkable segments, which are cross-linkable by means of chemical bonds, and
- b) thermoplastic segments, which are not chemically cross-linkable,

wherein the shape-memory polymers do possess at least one transition temperature  $T_{trans}$ .

27. (currently amended) ~~Use of~~ A method of treating hair comprising the step of  
applying to the hair a physically crosslinkable shape memory polymer ~~for hair treatment~~,  
wherein the shape memory polymer comprises at least one hard segment with a first  
transition temperature  $T'_{\text{trans}}$ , which is crosslinkable by means of physical interactions,  
wherein the first transition temperature is above room temperature, and at least one soft  
segment having a second transition temperature  $T_{\text{trans}}$ , which lies below  $T'_{\text{trans}}$ .

**Please add the following new claim:**

28. (new) A method for the recovery of a programmed hairdo (permanent shape)  
obtained by one of the methods according to claim 1, wherein the hairdo in a temporary  
shape according to claim 14 or in the shape of a hairdo obtained by cold forming, is  
warmed to a temperature above  $T_{\text{trans}}$ .